

EPIDEMIOLOGY OF ACCIDENT CASES ATTENDING A TERTIARY CARE HOSPITAL IN KANPUR

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ABSTRACT

Background

Injuries following accidents are responsible for approximately 9 percent of all causes of deaths in the world and about 16 percent of the disabilities are reported due to injuries. Injuries worldwide, are dominated by those incurred in road traffic accidents.

Objectives

To study the biosocial correlates, type of accident and type of injury sustained by accident cases.

Material & Methods

The study was conducted among accident cases attending LLR Hospital, Kanpur. Data was entered in a pre-designed and pre-tested questionnaire and analyzed using percentages.

Results

Most of the accident cases were males (73.26%) and from rural areas (58.84%). Majority of the cases were literate (94.63%) and employed (90.00%). RTA (64.11%) was the commonest type of accident. Maximum number (30.63%) of accidents were in 20-30 year age group. Fracture (61.93%) was the commonest type of injury sustained.

Conclusions

Most of the accident victims were males and were in the economically most productive age group. RTA was the commonest type of accident. Fracture was the commonest type of injury sustained.

KEYWORDS: Accident; RTA; Fall; Poisoning; Fracture

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INTRODUCTION

Anything that is unexpected and unplanned is an accident.⁽¹⁾ According to the World Health Organization (WHO), an accident is an unpremeditated event resulting in recognizable damage.⁽²⁾ Injuries following accidents are responsible for approximately 9 percent of all causes of deaths in the world and about 16 percent of the disabilities are reported due to injuries.

Of all the systems that people have to deal with on a daily basis, road transport is the most complex and

the most dangerous. Injuries worldwide, are dominated by those incurred in road traffic accidents. Road traffic accident (RTA) is an accident that occurs on a way or street, involves at least one moving vehicle and results in injury or death of one or more persons.⁽³⁾

Globally, more than a million people die each year following RTA leading to considerable financial loss, particularly in developing economies. According to an estimate, road traffic injuries cost low and middle income countries between 1-2% of their gross national product. Injuries following RTA are the 8th leading cause of death globally and the leading cause of death for young people aged 15-29 years.

Globalization has brought India into the forefront of progress. Expansion of road networks, surge in motorization, increasing mechanization in agriculture and industry and rapid rise in population have resulted in an increase in the incidence of accidents. Studies conducted in different parts of the country have reported that accidents are one of the commonest emergencies presenting to the emergency department.^{(4),(5),(6)}

Kanpur is the main centre of commercial, trading, educational and industrial activities in Uttar Pradesh. A study conducted in 1992 showed that RTA comprises the highest mode of injury and also the highest mode of mortality in Kanpur.⁽⁷⁾ Recent studies regarding accidents in Kanpur are rare. Reliable and accurate data are needed to raise awareness about the magnitude of this public health problem and to convince policy-makers of the need for action. Hence, the present study was conducted in a tertiary care hospital in Kanpur to study the biosocial correlates, type of accident and type of injury sustained by accident cases.

MATERIALS& METHODS

The hospital based cross sectional study was conducted at the Emergency Ward of Lala Lajpat Rai Hospital which is an associated hospital of G.S.V.M Medical College, Kanpur. Ethical clearance was obtained from the Institutional Ethical Committee prior to the conduction of the study. All accident cases attending the Emergency Ward during the period of March-September, 2015 were included in the present study. Unconscious cases with no accompanying person, cases where complete information could not be obtained and cases who did not give consent for the study were excluded.

The final sample size consisted of 950 accident cases. Epidemiological information and other related data of study subjects was recorded in a pre-designed and pre-tested questionnaire. A general health examination of cases was done using standard methods and body part sustaining injury was recorded as per WHO's injury reporting form.⁽⁸⁾

Statistical Analysis

The Master table was prepared from the data collected using MS Excel software. SPSS software version 16.0 was used for analysis of collected data using percentages.

RESULTS

Most (73.26%) of the accident cases were males. Maximum cases (58.84%) were from rural areas. Majority of the cases were literate (94.63%) and were employed (90.00%) [**Table 1**].

Most (68.32%) of the accidents took place on road followed by home (22.63%) [**Table 2**].

RTA (64.11%) was the commonest type of accident followed by fall (19.89%). The commonest type of accident among both males (61.21%) and females (72.05%) was RTA. The second commonest type of accident among males was

fall (26.01%) while among females it was burn as well as poisoning, 12.20% each [Table 3].

Maximum number (30.63%) of accident cases were in 20-30 year age group. The least (1.05%) were in ≥ 80 years age group. Among all the victims of RTA, maximum number (29.89%) of cases belonged to 20-30 years age group. The least (0.66%) were in ≥ 80 years age group [Table 4].

Fracture was the commonest type of injury sustained in all types of accidents (61.93%) and also in RTA (68.50%) [Table 5].

DISCUSSIONS

In the present study most (73.26%) of the accident victims were males. Similar trend was observed in Bangalore by Suryanarayana SP *et al* (76.4% males), Menon Geetha R *et al* (76.9% males) and Pruthi N *et al* (70.4% males).^{(9),(10),(11)}

In the present study, maximum number (58.84%) of cases were from rural areas. This finding is similar to the study conducted by Kaul V *et al* in Hubli, Karnataka where 70% of victims were from rural areas.⁽¹²⁾ Ruikar Min in her analysis of national trends of road traffic accidents also reported that in 2011, 53.5% of accidents occurred in rural areas.⁽¹³⁾

In the present study, majority (94.63%) of the cases were literate. Similar trend was observed in the studies conducted by Suryanarayana SP *et al* where 88.4% of the victims were literate and Kaul V *et al* where 79.28% of the victims were literate.^{(9),(12)}

In our study, majority (90.00%) of the cases were employed. Similar trend was observed in the study conducted by Mahajan N *et al* in Shimla where the highest number of victims were employees (34.7%).⁽¹⁴⁾

In our study, most (68.32%) of the accidents occurred on road. This is similar to the finding in the study conducted by Suryanarayana SP *et al* where 65.8% were injured on the road.⁽⁹⁾

In the present study, RTA was the commonest type of accident (64.11%) followed by fall (19.89%), poisoning (7.37%), burn (5.58%). Gupta AK *et al* had also reported that RTA was the commonest (50.15%) type of accident in Kanpur followed by fall from height (18.8%).⁽⁷⁾ Similarly, RTA was the most common mode of injury in the studies conducted by Suryanarayana SP *et al* (65.8%), Menon Geetha R *et al* (44%) and Agarwal A *et al* (46.8%).^{(9),(10),(15)} Ruikar M in her analysis of national trends of RTA reported that during 2012, road traffic accidents shared 35.2% of the accidental deaths in India.⁽¹³⁾

In our study, maximum number of accidents were in 20-30 year age group (30.63%). Maximum number of RTA victims were in 20-30 years age group (29.89%). Similarly the most common age group involved in RTA was 21-30 years in the studies conducted by Singh H *et al* (27.3%), Patil SS *et al* (31%) and Aggarwal KK *et al* (31%).^{(16),(17),(18)}

In the present study, fracture was the commonest type of injury sustained in all types of accidents (61.93%) and also in RTA (68.50%). Similarly fracture was the commonest type of injury among RTA victims in the studies conducted by Kaul V *et al* (70.82%) and Bayan P *et al* (71.69%).^{(12),(19)}

CONCLUSIONS

Most of the accident victims were male and from rural areas. Majority of the cases were literate and employed. Most of the accidents took place on road. RTA was the commonest type of accident irrespective of gender. Maximum victims of accident as well as RTA were in the economically productive age group. Fracture was the commonest type of

injury sustained by the victims.

RECOMMENDATIONS

The drivers and travelling public should be educated regarding traffic rules. There should be strict enforcement of traffic rules by the concerned authorities. Setting up of Injury Surveillance system at the national level will help in proper planning, implementation and evaluation of road safety activities.

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APPENDICES

Table 1: Bio-Social Correlates of Accident Cases (N=950)

Biosocial Correlates	Cases	%
Gender		
Male	696	73.26
Female	254	26.74
Residence		
Rural	559	58.84
Urban	391	41.16
Educational status		
Literate	899	94.63
Illiterate	51	5.37
Occupational status		
Employed	855	90.00
Unemployed	95	10.00

Table 2: Place of Accident (N=950)

Place of Accident*	Cases	%
Road	649	68.32
Home	215	22.63
Workplace	33	3.47
Educational institute	2	0.21
Field	29	3.05
Industry	18	1.89
Railway	4	0.42

*As per WHO's Injury Reporting Form

Table 3: Type of Accident and Gender (N=950)

Type of Accident	Male (%)	Female (%)	Total (%)
RTA	426 (61.21)	183 (72.05)	609 (64.11)
Fall	181 (26.01)	8 (3.15)	189 (19.89)
Industrial accident	18 (2.59)	-	18 (1.89)
Burn	22 (3.16)	31 (12.20)	53 (5.58)
Snake bite	6 (0.86)	1 (0.39)	7 (0.73)
Poisoning	39 (5.60)	31 (12.20)	70 (7.37)
Railway accident	4 (0.57)	-	4 (0.42)
Total	696 (100)	254(100)	950 (100)

Table 4: Type of Accident According to Age (N=950)

Age Group (in years)	Mode of Accident							Total (%)
	RTA (%)	Fall (%)	Industrial accident (%)	Burn (%)	Snake Bite (%)	Poisoning (%)	Railway Accident (%)	
<10	9(1.48)	3 (1.59)	-	1 (1.89)	-	-	-	13 (1.37)
10-20	78 (12.81)	27 (14.29)	-	13 (24.53)	3 (42.86)	13 (18.57)	-	134 (14.11)
20-30	182 (29.89)	42 (22.22)	9 (50.00)	23 (43.40)	1 (14.29)	32 (45.71)	2 (50.00)	291 (30.63)
30-40	148 (24.30)	31 (16.40)	1 (5.56)	12 (22.64)	-	15 (21.43)	1 (25.00)	208 (21.89)
40-50	94 (15.44)	27 (14.29)	4 (22.22)	4 (7.55)	1 (14.29)	5 (7.14)	-	135 (14.21)
50-60	46 (7.55)	20 (10.58)	4 (22.22)	-	-	4 (5.71)	1 (25.00)	75 (7.89)
60-70	40 (6.57)	19 (10.05)	-	-	2 (28.57)	1 (1.43)	-	62 (6.53)
70-80	8(1.31)	14 (7.41)	-	-	-	-	-	22 (2.32)
≥80	4(0.66)	6 (3.17)	-	-	-	-	-	10 (1.05)
Total	609 (100)	189 (100)	18 (100)	53 (100)	7 (100)	70 (100)	4 (100)	950 (100)

Table 5: Distribution of Cases According to Type of Injury Sustained (N=950)

Type of Injury*	RTA (%)	Fall (%)	Industrial Accident (%)	Burn (%)	Snake Bite (%)	Poisoning (%)	Railway Accident (%)	Total (%)
Superficial Injury	5 (0.69)	2 (1.03)	-	53 (98.15)	7 (35.00)	-	2 (28.57)	69 (6.28)
Open wound	95 (13.07)	15 (7.73)	6 (23.08)	-	-	-	-	116 (10.56)
Fracture	498 (68.50)	167 (86.08)	13 (50.00)	-	-	-	2 (28.57)	680 (61.93)
Joint Dislocation	73 (10.04)	2 (1.03)	2 (7.69)	-	-	-	-	77 (7.01)
Nerve Injury	-	1 (0.52)	-	-	-	-	-	1 (0.09)
Muscle Injury	25 (3.44)	4 (2.06)	4 (15.38)	-	-	-	-	33 (3.01)
Organ Injury	1 (0.14)	1 (0.52)	-	-	-	-	-	2 (0.18)
Amputation	-	-	1 (3.85)	1 (1.85)	-	-	3 (42.86)	5 (0.46)
Others**	30 (4.13)	2 (1.03)	-	-	13 (65.00)	70 (100)	-	115 (10.47)
Total***	727 (100)	194 (100)	26 (100)	54 (100)	20 (100)	70 (100)	7 (100)	1098 (100)

*as per WHO's Injury Reporting Form

**Others include cases presenting with eye injury, respiratory distress, gastro-intestinal symptoms, urinary problems etc.

***Multiple type of injuries were recorded